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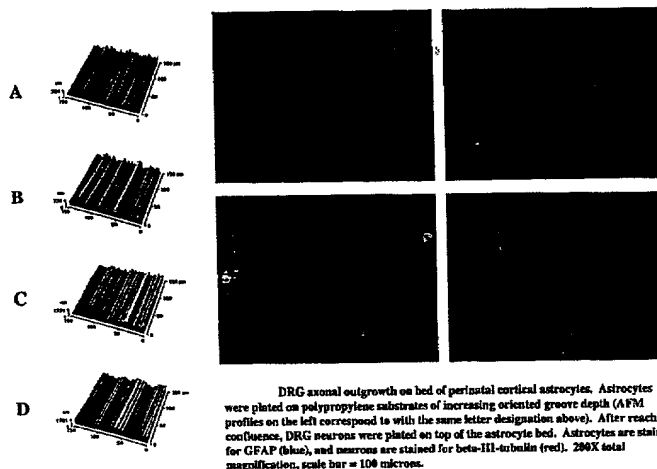
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(54) Title: **BIOARTIFICIAL DEVICE FOR PROPAGATION OF TISSUE, PREPARATION AND USES THEREOF**



DRG axonal outgrowth on bed of perinatal cortical astrocytes. Astrocytes were plated on polypropylene substrates of increasing oriented groove depth (AFM profiles on the left correspond to with the same letter designation above). After reaching confluence, DRG neurons were plated on top of the astrocyte bed. Astrocytes are stained for GFAP (blue), and neurons are stained for beta-III-tubulin (red). 200X total magnification, scale bar = 100 microns.

(57) Abstract: The present invention relates to a device and corresponding methods for its use, in the propagation of tissue. The device comprises a bioartificial composite comprised of a substrate having at least one surface capable of the reception and growth promoting retention of a cellular preparation, and a first layer of adherent cells disposed on said surface. The first layer is prepared from the cellular preparation, and the cells comprising the first layer have cytoskeletal elements aligned uniformly, so that the bioartificial composite acts as a template to accept a second layer of cells upon the first layer, said second layer comprising an organized layer oriented in the direction of said first layer, wherein said substrate has at least one surface defined by a critical surface curvature and/or topography. The device may be implanted for the promotion of tissue regrowth, or may be used to develop tissue on an *ex vivo* basis, for implantation or for experimentation.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

